



**UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
097002,007	12/31/97	HUNG J	015290-230

IM61/0421
JAMES W PETERSON
BURNS DOANE SWECKER AND MATHIS
P O BOX 1404
ALEXANDRIA VA 22313-1404

EXAMINER
VINH, L

ART UNIT	PAPER NUMBER
1765	

DATE MAILED: 04/21/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/002,007

Applicant(s)
Jeffrey Hung et al.

Examiner
Lan Vinh

Group Art Unit
1765



☒ Responsive to communication(s) filed on Dec 31, 1997

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-15 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-13 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☒ Claims 14 and 15 are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 5

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Election/Restriction

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-13, drawn to a method, classified in class 438, subclass 710.
 - II. Claims 14-15, drawn to a product, classified in class 252, subclass 79.3.
2. The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case, the product as claimed can be used in a materially different process of using that product such as etching a polysilicon layer.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Peter Skiff on April 14, 1999 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-13. Affirmation of this election must be made by applicant in replying to this Office action. Claims 14-15 are withdrawn

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from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(I).

Claim Rejections - 35 USC § 112

6. Claims 3, 4 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In lines 1-2 of claim 3, “ channels forming an interconnecting network “ is vague and indefinite.

In line 2 of claim 10, “ inductively coupling radio frequency energy” is vague and indefinite.

Claim 4 is indefinite for use of improper Markush language. The Examiner suggests replacing “ consists essential of “ with “ consisting essentially of “.

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7. Claim 10 recites the limitation " an antenna" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-13 are rejected under 35 U.S.C 102(b) as being anticipated by Shan et al.(US 5,514,247).

Regarding claims 1 - 13 of the instant invention, Shan discloses a process for plasma etching of vias comprises the steps of : depositing a film of **aluminum alloy** with a TiN **antireflective coating** on the top of the aluminum upon the substrate (Col 3, lines 44-47), depositing a dielectric film over the metal layer and patterning the dielectric layer by means of photoresist techniques to establish patterns which upon etching will establish vias through the dielectric which will allow metallic contact structures (Col 3, lines 48-52), **plasma etching** the dielectric (as well as any antireflective coating , which must also be removed) within a plasma etch reactor using **fluorine bearing** gases (Col 3, lines 60-61 and paragraph 1) , adding a gas

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such as Cl_2 to the fluorine bearing gases (Col 3, paragraph 1) , flowing a gas mixture of CHF_3 , CF_4 , Ar into the processing chamber (Col 4, lines 23-24) .

Regarding claims 5, 7 and 13, Shan further discloses that the pressure within the etching chamber is stabilized at about 50 to 300 millitorr, a gas mixture are flowed into the processing chamber in the flow ranges of about 15-100 sccm CHF_3 , 10-150 sccm Ar (Col 4, paragraph 3), flow ranges of about 5-25 sccm of Cl_2 is added to the basic etch gas mixture (Col 4, lines 63-64) and the support platform temperature is kept in a range about 5-45° C (Col 4, lines 39-40) .

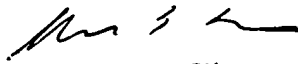
Regarding claims 6 and 10, it is well known in the art of IC fabrication to employ ARC layer to prevent actinic light from being reflected from the metallic layer during the patterning process. It is also known that in plasma etching system , a rf (radio frequency) excitation frequency has to be applied to the reaction chamber to create a glow discharge in the reaction chamber.

Conclusion

10. Any inquiry concerning this communication from the Examiner should be directed to Examiner Lan Vinh whose telephone number is (703) 305-6302.

LV

April 16, 1999


BENJAMIN UTECH
PRIMARY EXAMINER
GROUP 1100